AMENDMENTS TO THE SPECIFICATION

Please amend the paragraph beginning on page 20, line 27, as follows:

As one source of feedback control, the optimizer uses the thickness of the most-recently plated wafer at each of a number of radial positions on the plated wafer. These radial positions may either be selected from the radial positions corresponding to the rows of the matrix, or may be interpolated between the radial positions corresponding to the rows of the matrix. A wide range of numbers of radial positions may be used. As the number of radial positions used increases, the optimizer's results in terms of coating uniformity tends to improve~~s~~. However, as the number of radial positions used increases, the amount of time required to measure the wafer, to input the measurement results, and/or to operate the optimizer to generate new currents can increase. Accordingly, the smallest number of radial positions that produce acceptable results is typically used. One approach is to use the number of radial test points within a standard metrology contour map (4 for 200mm and 4 or 6 for 300mm) plus one, where the extra point is added to better the 3 sigma uniformity for all the points (*i.e.*, to better the diameter scan).

Please amend the paragraph beginning on page 25, line 22, as follows:

In Equation (B3), t_i^{target} is the target thickness required to obtain a wafer of desired profile while considering the total current adjustment, t_i^{old} is the old overall thickness, $t_i^{new\,seed}$ is the thickness of the new seed layer, $t_i^{old\,seed}$ is the thickness of the old seed layer, and $t_i^{specified}$ is the thickness specification relative to the center of the wafer, that is, the thickness specified by the target plating profile. In particular, the sum of the term t_i^{target} and the term $t_i^{specified}$ represents the target thickness, while the quantity $t_i^{target} - t_i^{old}$ represents feedback from the previous wafer, and the quantity $t_i^{new\,seed} - t_i^{old\,seed}$ represents feedforward from the thickness of the seed layer of the incoming wafer -- to disable

feedback control, the first quantity is omitted from equation (B3); to disable feedforward control, the second quantity is omitted from equation (B3).

Please amend the paragraph beginning on page 37, line 5, as follows:

The deposition chamber is used to deposit a film on a wafer in accordance with these initial currents. That is, during the first half-minute of deposition (step 1), +.2 amps are delivered through anode 1. During the next 1.25 minutes of the process (step 2), +1.8 amps are delivered through anode 1 for 95 milliseconds, then -0.86 amps are delivered through anode 1 for 25 milliseconds, then no current flows through 1 for 10 milliseconds, and then the cycle is repeated until the end of the 1.25 minute duration of step 2. Overall, the charge of 1.537 amp-minutes is delivered through anode 1. This value is determined by multiplying duration, forward fraction, and anode 1 current from step 1, then adding the product of the duration of step 2, the forward fraction of step 2, and the forward anode 1 current of step 2, then adding the product of the duration of step 2, the backward fraction of step 2, and the backward anode 1 current of step 2. Such net plating charges may be calculated for each of the anodes, as shown below in Table 10.

Please amend the paragraph beginning on page 40, line 3, as follows:

These steps may be qualified in a variety of ways including: the measurement/optimizer sequence steps can be performed during tool qualification or "dial-in"; the measurement/optimizer sequence steps sequence can be performed periodically to monitor performance; the measurement/optimizer sequence steps sequence can be performed on each wafer; SLE process may be optional depending upon the measurement results in step 2 (*i.e.*, this wafer may routed around this and associated process steps); wafer sequence may be terminated, rerouted, or restarted based upon the measurement results of step 2, 6, 8, 12, and 14; measurement/optimizer steps may be performed only after process/hardware changes; measurements before and after annealing (*e.g.*, sheet resistance) may be used to determine effectiveness of annealing process; metal deposition steps 4 and 10 may be deposition of same metals or

different metals -- they could deposit the same metal using different baths; one or more metal deposition steps could be used, which deposit one or more different metals; the optimization steps may adjust currents to generate a flat thickness profile or one with a specified shape; the optimization steps may adjust current to generate a desired current density profile for ~~future~~ feature filling; the wafer may be returned to a deposition chamber for additional metal deposition if the film thickness is insufficient, based upon metrology results.

Please amend the paragraph beginning on page 44, line 7, as follows:

Dial-In Uniform Current Density Recipes: Using the optimizer and metrology the optimizer can be used to help dial in recipes that ~~insure~~ ensure uniform current density during the feature filling step.